FINDINGS AND RECOMMENDATIONS
ENVIRONMENTAL BASELINE SURVEY - TASK 1
NAVAL TRAINING CENTER - BAINBRIDGE
PORT DEPOSIT, MARYLAND

Contract No. N62472-92-D-1296
Contract Task Order No. 0059

Prepared for:

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1. INTRODUCTION

EA Engineering, Science, and Technology under Contract No. N62472-92-D-1296, Contract Task Order (CTO) No. 0059, has been tasked to perform Task 1 of the Environmental Baseline Survey (EBS) at the Naval Training Center in Bainbridge (NTC-B), Port Deposit, Maryland (Figure 1-1). Work completed under Task 1 included a visual site inspection, interviews, records review, compilation of a records repository for information collected during Task 1, and this report on Findings and Recommendations. Follow-on tasks will include sampling and analysis (Task 2), and preparation of an EBS Report (Task 3).

1.1 SITE DESCRIPTION

NTC-B is currently inactive with respect to Naval operations. NTC-B was constructed in 1941 as a training center for World War II Navy recruits. The facility was partially deactivated after World War II, but experienced major activity following the Korean crisis in 1951. In the post-war years, NTC-B became the host for various schools and functions, including the Naval Preparatory School, the Nuclear Power School, the Naval Reserve Manpower Center, WAVES Headquarters, and a U.S. Naval Hospital. Operations at NTC-B were reduced in 1972, and NTC-B was formally closed in 1976; however, the Navy has retained ownership. Mr. Paul Arnold serves as the Caretaker at NTC-B and maintains an office at Building K.

The Department of Labor sponsored a Job Corps Center at NTC-B from 1978 until 1990. The Center provided training in various trades, including carpentry, plumbing, masonry, electrical, culinary arts, and secretarial. The Center supported approximately 1,200 resident students and staff members at its peak.

Approximately 717 structures (e.g., buildings, flagpoles, bus shelters, etc.) were located on NTC-B prior to the initiation of a structure demolition project in 1990. Since that time, approximately 631 structures have been demolished, leaving 86 structures onsite. NTC-B is in a general state of disrepair, with many of the remaining structures damaged by weather and/or vandals, and unimproved portions of NTC-B significantly overgrown with vegetation. Figure 1-2 depicts NTC-B prior to the initiation of the Navy's demolition contract. It is noted that the Department of Labor had removed numerous structures from NTC-B prior to the initiation of the Navy's demolition contract (e.g., the 5th Regiment area) and, therefore, this figure does not represent peak Naval activity.

Numerous contractors are currently or were recently conducting operations at NTC-B. OHM completed removal actions for the Navy at the Old Base Landfill (Site 1) and the Fire Training Area (Site 2), and Ecology and Environment is currently in the process of completing a revised Remedial Investigation pertaining to Sites 1 and 2. Neither of these contractors maintain facilities at NTC-B. International Crane is serving as the building demolition/asbestos abatement contractor for the Navy at NTC-B, and Versar Corporation was contracted by the Navy to provide oversight of the building demolition/asbestos abatement project. International Crane

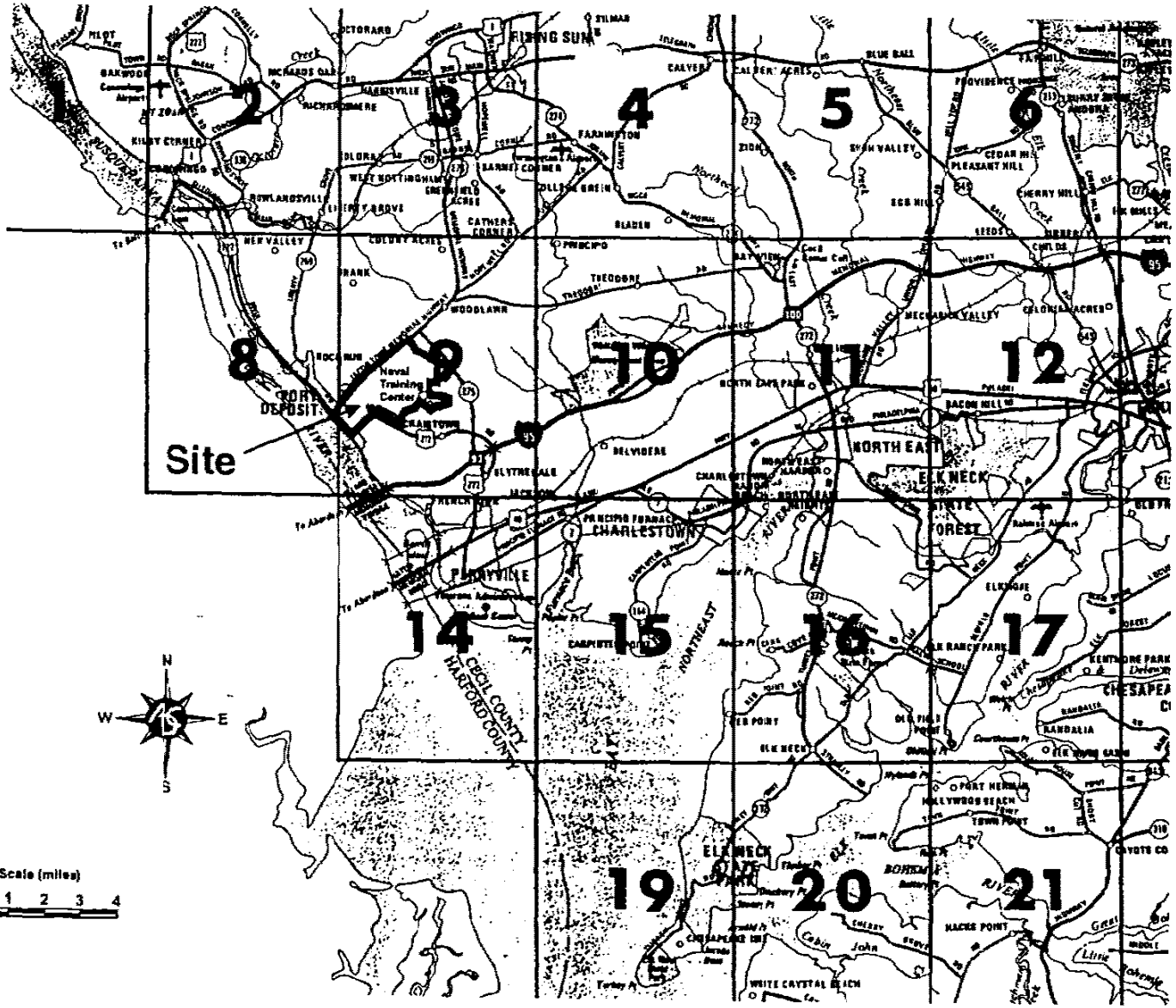

Figure 1-1. Site Location Map, Naval Training Center Bainbridge (NTC-B).
(Source: ADC Street Map, Cecil County).

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- Mr. Mike Frank, Maryland Department of the Environment (MDE), Oil Control Program (OCP)
- Mr. Cliff Martin, former U.S. Navy employee
- Mr. Bill Yale, former U.S. Navy employee

Written transcripts summarizing the content of these interviews will be included in an appendix to the EBS Report to be prepared under Task 3.

1.2.3 Record Reviews

EA conducted a review of available records regarding the history of NTC-B as they pertained to matters of environmental significance. A list of records reviewed under Task 1 of the EBS at NTC-B is provided below:

1.2.3.1 Reports

Hazardous Waste/Material Sites

- Hydrogeological Investigation of Waste Disposal Sites at the Former Naval Training Center, Bainbridge, Port Deposit, Cecil County, Maryland; 7 December 1988, Versar, Inc.
- Draft Remedial Investigation Report for the Bainbridge Naval Training Center, Port Deposit, Maryland; December 1991, Ecology and Environment, Inc.
- Engineering Evaluation/Cost Analysis (EE/CA) for Site 1-Old Landfill and Site 2-Fire Training Area at the Naval Training Center (NTC) Bainbridge, Maryland; 10 June 1994, Engineering Field Activity Chesapeake.
- Hazardous Material/Waste and Polychlorinated Biphenyl (PCB) Status Report for Former NTC Bainbridge; 8 July 1982, LANTNAVFACENGCOM.
- Preliminary Assessment Report, Naval Training Center, Bainbridge, Maryland; September 1991, Naval Energy and Environmental Support Activity (NEESA).
- Environmental Assessment for Disposal of Former Naval Training Center (NTC) Bainbridge, Cecil County, Maryland; August 1992, Chesapeake Division NAVFACENGCOM in association with CH2M Hill.

maintains an office trailer in the central portion of NTC-B on Bainbridge Road, and Versar's onsite presence ended on 31 December 1995.

Portions of NTC-B are leased to and used by the Cecil County Community College Truck Driver Training School. The College maintains a truck staging and office area at Gate 14 in the northern portion of NTC-B. Driver training exercises are conducted in the vicinity of the former warehouse area in the northern portion of NTC-B and the large parking lot adjacent to the main station entrance along U.S. Route 222 in the southern portion of NTC-B.

1.2 ENVIRONMENTAL BASELINE SURVEY-TASK 1 METHODOLOGIES

1.2.1 Site Inspection

The site inspection consisted of a visual survey of NTC-B and the accessible improvements thereon. Site inspections were initiated on 6 November 1995, and were completed on 6 December 1995. The site inspection was conducted by Mr. Chris Miller and Ms. Brenda Tarrant of EA. Mr. Paul Arnold, the U.S. Navy Caretaker of NTC-B, provided an initial tour of the entire property, and was present during portions of the site inspection. Photographs were taken to record property conditions and photographs depicting visual evidence of environmental concerns identified during the inspection will be included in the EBS Report to be prepared under Task 3.

1.2.2 Interviews

Interviews were conducted with personnel familiar with historical and existing operations at NTC-B under Task 1 of the EBS. Interviews were conducted with the following individuals:

- Mr. Paul Arnold, U.S. Navy Caretaker, NTC-B
- Mr. Richard Mezzadonna, Versar Corporation
- Mr. Frank Zepka, U.S. Navy, EFA-Chesapeake, Environmental Engineer and Contracting Officer's Technical Representative (COTR)
- Mr. George Clouden, U.S. Navy, EFA-Chesapeake
- Mr. Ken Booth, U.S. Navy, EFA-Chesapeake
- Ms. Debra Moomey, U.S. Navy, EFA-Chesapeake, Realty Specialist
- Mr. Gary Vick, U.S. Navy, EFA-Chesapeake
- Mr. Steve Hiortdahl, U.S. Geological Survey (USGS)

- Environmental Baseline Survey for Transfer, Bainbridge Naval Training Center, Port Deposit, Maryland; May 1993, Environmental Quality Division, Chesapeake Division, NAVFACENGCOM. Including Maryland Department of the Environment Letter of Comments, 29 July 1993.

Underground Storage Tanks

- Final Report, Assessment of Underground Storage Tanks at the Former Naval Training Center Bainbridge, Maryland; 4 November 1988, Versar, Inc.
- Final Report, Bainbridge NTC Underground Storage Tank Remediation Project; 22 January 1991, Versar, Inc.
- Underground Storage Tank Removal/Abandonment Forms; 1989-1995, Maryland Department of the Environment.

Asbestos

- Final Report, Asbestos/Structural Evaluation of Buildings at the Former Naval Training Center, Bainbridge, Maryland; 1 December 1988, Versar, Inc.

Wetlands

- Wetland Delineation Report for the Installation Restoration Program, U.S. Naval Training Center, Bainbridge (NTC-B), Port Deposit, Maryland, July 1994, Ecology and Environment, Inc.

1.2.3.2 Correspondence

- Correspondence File, Environmental Issues, EFA-Chesapeake Administrative Record.
- Memorandum: Remaining Open Underground Storage Tank Case at Bainbridge Naval Training Center; 14 June 1995, Herb Meade, Oil Control Program, Maryland Department of the Environment.
- Position Paper on Property Transfer Former Naval Training Center - Bainbridge (NTCB) Port Deposit, Maryland; 28 August 1995, U.S. Environmental Protection Agency Region III (in consultation with Maryland Department of the Environment).
- Letter to EFA-Chesapeake Re: Scope of Follow-on Work, Environmental Baseline Survey to Transfer ("EBST"), Former Naval Training Center - Bainbridge ("NTCB"), Port Deposit, Maryland; 25 October 1995, U.S. Environmental Protection Agency Region III.

- Letter to EFA-Chesapeake Re: Additional Polychlorinated Biphenyl ("PCB") Sampling, Current/Former Locations of Electrical Equipment, Former Naval Training Center - Bainbridge ("NTCB"), Port Deposit, Maryland; 25 October 1995, U.S. Environmental Protection Agency Region III.

1.2.3.3 Additional Records

- Hazardous Waste Disposal File, Manifests and Shipping Records, 1985-1995, NTC-B.
- Sewage Digester Sludge Investigative File, 1987-1993, EFA-Chesapeake.
- Underground Storage Tank Removal Documents, 1988-1995, Maryland Department of the Environment, Versar Corporation, Clean Harbors.
- Aerial Photographs, 1938-1988, various sources including U.S. Army Corps of Engineers (USACE), USGS, National Ocean Service (NOS), Agricultural Stabilization and Conservation Service (ASCS), National Archives.

In addition, EA is currently awaiting copies of the following documents for review:

- Revised Remedial Investigation Report including revised Risk Assessment for Sites 1 and 2, Ecology and Environment, Inc.
- Sampling and Analytical Report and Contractor's Close-Out/As-Built Documentation for Removal Actions at Sites 1 and 2, OHM Remediation Services Corp.

1.2.4 Regulatory Position Paper

Throughout Task 1 activities, efforts were made to address the concerns raised by EPA and MDE in their Position Paper on Property Transfer, Former Naval Training Center - Bainbridge (NTCB), dated 5 September 1995. Additional activities, including the collection and analysis of samples, will be conducted under Task 2 to further address these issues. The results of these activities will be summarized in the EBS Report (Task 3).

1.3 LIMITATIONS

The historic buildings located in the Tomes School area were identified in a significantly deteriorated condition. Vandalism, water, and wind have resulted in significant damage to the buildings, and a portion of the buildings was posted as condemned. The dilapidated condition of these buildings prevented a visual inspection of all floors in many of the structures. Specifically, in the residential buildings where significant damage to stairways and floors was noted, EA did not inspect upper floors or basements. In discussions with Mr. Paul Arnold, EA was informed that the upper and basement floors in the damaged housing buildings were similar to those observed in other housing buildings.

1.4 ORGANIZATION OF REPORT

Chapter 2 of this report presents the findings compiled during Task 1 of the EBS at NTC-B. The findings are presented as they relate to issues of environmental significance, such as USTs, PCB, asbestos, etc. Chapter 3 presents recommendations relative to the findings presented in Chapter 2. The recommendations are grouped as those that pertain to future investigations to be conducted as part of the EBS at NTC-B (Task 2), and those that fall outside the scope of the EBS, but warrant the attention of the U. S. Navy to facilitate site closure. In addition, Table 3-1 presents a summary of the Areas of Concern (AOC) identified during Task 1 of the EBS at NTC-B along with recommended actions. This table will be further amended pending initiation and completion of Tasks 2 and 3.

2. FINDINGS

2.1 UNDERGROUND STORAGE TANKS

Based on the review of the two Versar reports detailing the UST removal/remediation projects at NTC-B, and review of MDE OCP files and files held at the Washington Navy Yard, it appears that 232 USTs have been removed from NTC-B. The majority of the tanks were removed during a UST remediation project conducted by Clean Harbors (UST removal subcontractor to Versar Corporation) and Versar Corporation (Navy contractor) from 1989 to 1991. Additional USTs were identified and removed during building demolition/landfill construction activities conducted from 1992 to the present. Based on the results of Task 1, it appears that the heating oil UST currently serving Building K, which serves as the site manager's office, is the only remaining UST onsite.

Varying amounts of subsurface contamination were identified at the UST sites, resulting in excavation of contaminated soil and, in some cases, installation of ground-water monitoring wells. Temporary monitoring wells were initially installed in each UST removal location. These wells consisted of a PVC well screen that was placed in the UST excavation while the hole was backfilled. However, the Navy and MDE made a determination that the sampling of nese wells was unnecessary.

A total of 13 monitoring wells were installed during the UST remediation project conducted by Clean Harbors and Versar. According to Mr. Mike Frank of MDE OCP, only a single monitoring well at the former Building 756-A location (former service station) is currently active with regard to sampling. Mr. Frank stated that, following the next sampling event by the Navy, assuming that petroleum constituent levels continued to decline, the case at Building 756-A would likely be closed. However, during the discussion, EA was informed that the CERCLA branch at MDE is considering re-opening the case at Building 718, the former dry cleaning facility where solvent USTs were removed on 9 January 1990. A preliminary review of the analytical results for ground-water samples collected from the wells at Building 718 indicated that volatile organic compounds (VOC) were not detected in the ground-water samples. However, the detection limits of the analyses were 10 μg/L, which is above the drinking water Maximum Contaminant Level (MCL) for some chlorinated solvents such as trichloroethylene (5 μg/L).

MDE OCP has record of one remaining active UST at NTC-B, the heating oil UST located adjacent to Building K. EA's visual site inspection identified an apparent UST vent pipe adjacent to Building N. Mr. Paul Arnold indicated that a heating oil UST was formerly located adjacent to Building N. A review of the Versar reports, and MDE and Navy files did not identify documentation of a UST removal at this location. In addition, based on its similarity to Building N, it appears that a UST may be located at Building M, although visual evidence of a UST (e.g., fill caps, vent pipes, etc.) was not identified in the vicinity of Building M.

The EA team's site inspection at Building 760, the automotive shop, revealed the presence of two service pits, each of which contained an oil drain pan connected to an underground pipe. The layout of the oil drain pipes suggests the potential presence of a waste oil UST at Building 760. A review of the UST removal reports indicated that one heating oil UST which was removed supplied a small boiler in the rear of the building. Based on this information, it appears that a waste oil UST may be currently located at Building 760.

2.2 ABOVEGROUND STORAGE TANKS

One aboveground storage tank (AST) was identified in the basement of Building J-J. The tank appeared to be an empty residential heating oil AST with an approximate capacity of 250 gal. The tank appeared to be in fair condition, and there was no visual evidence of spills or releases (e.g., stained floor). The site inspection, interviews, and record reviews did not indicate the presence of additional Navy-owned ASTs onsite.

Two ASTs were identified in the vicinity of the former Brig (Building 627), where International Crane has established a temporary base of operations. The tanks were approximately 1,000 gal each and appeared to be used to store fuel products for construction vehicles operated in connection with the landfill construction activities onsite. Labels designating the contents of the tanks were not identified. The tanks are located in a bermed area, and visual evidence of significant releases of petroleum products was not identified. The site inspection, interviews, and record reviews did not indicate the presence of additional contractor-owned ASTs onsite.

One abandoned AST was identified behind Building 526. The AST was empty and rusted and appeared to have been dumped in the woods behind Building 526. The tank appeared to be a standard residential heating oil AST with an approximate capacity of 250 gal. Visual evidence of spills or releases from the AST (e.g., stained soil, stressed vegetation) was not observed, and no odors were detected. The site inspection, interviews, and record reviews did not indicate the presence of additional abandoned ASTs onsite.

2.3 PETROLEUM/OIL/LUBRICANTS

Building 529 (Fuel Oil Pump House) was identified to the west of former Building 502 (Enlisted Dining Facility). A visual survey of the vicinity of Building 529 revealed the presence of a circular concrete structure approximately 2 ft high and 20 ft in diameter behind the building, with several pipes connecting the structure to the interior of the building. The circular structure was filled with water. No oily sheen or other visual evidence of petroleum contamination was observed. According to Mr. Paul Arnold, the building formerly stored heating oil, which was pumped into trucks that transported and dispensed the heating oil into the heating oil USTs and ASTs located throughout NTC-B. According to Mr. Arnold, the heating oil was stored in a large AST which was formerly located inside the concrete structure which served as a containment area for potential spills.

An unlabeled 55-gal drum and several unlabeled 5-and 1-gal containers were identified in the vicinity of the Cecil Community College trailers located in the northern portion of NTC-B, adjacent to Gate 14. The containers appeared to contain oil and other automotive-related chemicals, and a small amount of surface staining (approximately 3 ft^2) was observed on the asphalt parking area adjacent to the containers. However, the staining appeared to represent a housekeeping issue as opposed to a significant environmental concern, as it was confined to the area immediately adjacent to the containers.

Additional stained areas were identified in scattered locations of NTC-B. These locations are summarized below:

- Paved roadway in the vicinity of former Building 632
- Building 103 in the vicinity of two International Crane trucks
- Building 760

According to Mr. Arnold, International Crane previously staged and performed mechanical repairs on a track-vehicle in the vicinity of former Building 632. In all of these locations, the stains were black and seemingly oil-related, and appeared to represent a housekeeping issue as opposed to a significant environmental concern.

Two unlabeled 5-gal buckets and one unlabeled 35-gal drum that appeared to contain oil/waste oil were identified at Building 760 (Automotive Shop). Areas of black floor staining were identified adjacent to these containers inside Building 760.

An approximately 4 sq ft portion of the concrete deck located behind the southern side of Building 760 was sunken approximately 18 in below grade. An apparent pump mechanism was visible in the sunken area, and an apparent oil/water mixture and dark surface stains were observed in the sunken area. No pipes were identified in the sunken area.

Approximately ten 55-gal drums were identified in the Drill Field west of Building 102. EA's visual inspection of the drums indicated that they contain oil and other automotive-related materials, based on the presence of dispensing equipment and slight petroleum odors. According to Mr. Arnold, the drums are the property of International Crane and are being temporarily stored in this location. Visual evidence of spills or releases (e.g., stained surfaces) was not observed.

2.4 HAZARDOUS MATERIALS

EA interviewed Mr. Paul Arnold regarding the history of NTC-B with respect to hazardous materials usage. According to Mr. Arnold, significant quantities of hazardous materials were not used or stored at NTC-B. Mr. Arnold stated that materials, including paints, paint thinners, and solvents, were stored in small quantities (approximately 5 gal) in flammable storage buildings. Mr. Arnold stated that reagents and other chemicals were stored at Building 692 (Sewage Treatment Building) and Building 693 (Water Treatment Plant) when they were

active. Mr. Arnold also stated that pesticides were formerly stored at Building 683 (Pesticide Shop), which has since been demolished, and that electric transformers were stored and serviced in the area of Buildings 713 and 714 (General Warehouses), which have also been demolished. Mr. Arnold also stated that cleaning compounds were stored in small quantities at various locations across the NTC-B.

In addition, Mr. Arnold stated that small quantities of pesticides were stored at a barn (Building 53), which was formerly located at the Sewage Treatment Plant.

EA's site inspection targeted the presence/absence of potential hazardous materials and petroleum products at NTC-B. Various materials were identified in locations across NTC-B. Descriptions of these materials, their locations, and the presence/absence of environmental concerns are discussed below and summarized in Table 2-1.

Hazardous/Flammable Material Storage Buildings

Five hazardous/flammable material storage buildings were identified as storing various chemical containers during the site inspection. These buildings and the materials observed are discussed below.

Building 404B—Various empty, unlabeled containers including approximately ten 55-gal drums and ten 5-gal drums, were identified in the vicinity of Building 404B. These containers were identified in the building, as well as in the woods surrounding the building. Visual evidence of environmental impacts resulting from these containers was not observed in the vicinity of Building 404B. According to Mr. Paul Arnold, OHM was contracted by the Navy to remove the containers and wastes from the wooded area behind Building 404B.

Building 502B—One 5-gal bucket, two 1-gal containers, and two approximately 1-gal glass jugs were identified in the vicinity of Building 502B. One of the 1-gal containers was full, and the other containers were empty. These containers were unlabeled and were found in the building, as well as in the woods surrounding the building. Visual evidence of environmental impacts resulting from these containers was not observed in the vicinity of Building 502B.

Building 505A—An empty 1-gal plastic can labeled sodium hypochlorite was found inside Building 505A. The visual survey indicated that paint had leaked from the rear (western) side of the building onto the ground, as evidenced by the presence of remnant paint material hanging from the damaged western wall of the building and soil staining over an area of approximately 3 ft^2. An empty, rusted metal cabinet was observed approximately 3 ft west of the building, which may have been formerly used to store flammable paint materials.

Building 506A—Several 1-gal and 5-gal containers were found inside Building 506A. The containers were rusted, and labels were not visible; however, the shape of the containers suggested that they may contain/have contained paint materials. Floor staining was identified

inside the building, as was a small crack in the floor along its eastern edge. A portion of the containers and floor stains were identified in the vicinity of the cracked floor.

Building 631—Several 1-gal and 5-gal containers were identified inside Building 631. The containers were stored on shelves or on the concrete floor. Stains were identified on the concrete floor, which appeared to be in good condition. A small hatch was identified in the roof of the building, and it appeared that rain water had entered the building through the hatch. A small hole was observed in the southern wall of the building at floor level, and it appeared that rain water entering the building through the roof hatch may exit the building through the hole. Soil staining or stressed vegetation was not identified outside Building 631 beneath the hole in the wall.

Miscellaneous Buildings

In addition to the Hazardous/Flammable Material Storage Buildings, various chemical containers were observed at scattered locations on NTC-B. These locations and the materials that were observed are discussed below.

Building 529—Two gas cylinders labeled as containing oxygen were observed on the ground to the southwest of Building 529 (Fuel Oil Pump House), and one empty 5-gal bucket was observed along the eastern side of the building. Visual evidence of environmental impacts (e.g., soil staining, stressed vegetation) was not identified in these areas.

Building 35—One partially filled, unlabeled, blue plastic 55-gal drum was observed adjacent to Building 35 (Garage). Visual evidence of spills or leaks from the drum was not observed.

Building 103B—Apparent paint stains were identified on the concrete floor of Building 103B (Storage), as was one empty can of paint stripper. The concrete floor appeared to be in good condition, and according to Mr. Arnold, this building was used by the Job Corps during their lease of a portion of NTC-B.

Building 103—Several empty 5-gal buckets and one acetylene gas cylinder were observed adjacent to concrete storage bins located north of Building 103 (Academic Instruction Building). According to Mr. Arnold, this area was used by the Job Corps during their lease of a portion of NTC-B.

Building 102—One automotive battery, one 5-gal bucket of floor sealer, and one full 35-gal drum were identified inside Building 102 (Administrative Office). The 35-gal drum was cardboard, and moving the drum suggested it contained a solid material. Visual evidence of leaks or spills from these containers in Building 102 was not observed. One empty 55-gal drum was observed adjacent to a concrete-walled storage/staging area east of Building 102. Visual evidence of leaks or spills from the drum was not identified.

Building 693—One full flow gas can, one automotive battery, six acetylene cylinders, one refrigerant (R-22) canister, and four fire extinguishers were identified at Building 693 (Water Treatment Building). Dark floor staining which appeared to be oil-related was identified in the lower level of the building in the machinery room. Visual evidence of releases from the containers identified at Building 693 was not observed, with the exception of the previously mentioned stains in the machinery room.

A waste dumpster which appeared to be full of empty plastic containers was identified north of Building 693. The contents of the dumpster were only partially visible due to its full condition. Visual evidence of spills or releases in the vicinity of the dumpster was not identified.

Building 692E—One empty 5-gal bucket and several empty 1-gal containers, as well as one partially-filled gas can were identified at Building 692E (Sewage Treatment Building). An approximately 3 ft square concrete-lined hole was identified in the floor of the building. Visual evidence of spills or releases (e.g., stained surfaces) in the vicinity of the hole was not identified, and the hole was filled with water at the time of the inspection. Based on the location and function of Building 692E, it appears that this hole is related to the former sewage treatment operations onsite.

A partially-filled 55-gal drum was identified adjacent to Building 692E (Sewage Treatment Building). The drum was significantly damaged and contained a solid material. The nature of the drum contents is not known. Areas of surface staining were not identified in the vicinity of the drum.

Building 760—One empty 55-gal drum was observed in the southern portion of the fenced yard surrounding Building 760 (Automotive Shop). Visual evidence of spills or releases (e.g., stained soil, stressed vegetation) was not identified in the area of the drum.

Buildings 713 and 714—One full 55-gal drum was identified in the woods west of the former locations of Buildings 713 and 714 (General Warehouses). The drum was rusty, but visual evidence of releases from the drum (e.g., stained soil, stressed vegetation) was not identified. Mr. Arnold conducted a joint inspection of the drum with EA, and he stated that the drum could potentially contain creosote, although he was unsure.

Building 659—Three partially filled 55-gal drums, one of which was partially buried, were identified in the woods along the northeastern boundary of NTC-B, in the vicinity of Building 659 (Storehouse). The exposed drums appeared to contain a black tar-like substance, which Mr. Arnold stated could have been roof tar or creosote. The contents of the partially buried drum are unknown. Visual evidence of releases from the exposed drums (e.g., stained soil, stressed vegetation) was not observed; however, it is noted that the bottoms of the drums appeared to be corroded.

TABLE 2-1 SUMMARY OF CHEMICAL CONTAINERS IDENTIFIED DURING SITE INSPECTION AT NTC-B

Building No.	Staining	Stressed Veg	Description
404B	No	No	Ten unlabeled 55-gal drums and ten unlabeled 5-gal drums.
502B	No	No	Two unlabeled 1-gal buckets, one unlabeled 5-gal bucket, two unlabeled 1-gal jugs.
505A	Floor	No	One empty 1-gal jug labeled as sodium hypochlorite.
506A	Floor + Soil	No	Several unlabeled 1-gal and 5-gal cans, possible paint containers.
631	Floor	No	Several unlabeled 1-gal and 5-gal cans, possible paint containers.
529	No	No	Two oxygen cylinders, one empty unlabeled 5-gal bucket.
35	No	No	One partially-filled, unlabeled 55-gal plastic drum.
103B	Floor	No	One empty 1-gal can of paint stripper.
103	No	No	Several empty unlabeled 5-gal buckets and one acetylene gas cylinder adjacent to storage bins.
102	No	No	One unlabeled 35-gal drum, one 5-gal bucket of floor sealer, one automotive battery, one empty 55-gal drum.
693	Floor	No	One full gas can, one automotive battery, six acetylene cylinders, one R-22 canister, four fire extinguishers.
693 Dumpster	No	No	Several empty chemical containers.
692E	No	No	One empty 5-gal bucket, several empty 1-gal cans, one partially filled gas can, one partially filled 55-gal drum.
760	No	No	One empty 55-gal drum.
713+714	No	No	One unlabeled full 55-gal drum.
659	No	No	Two unlabeled partially filled 55-gal drums containing tar-like substance, one partially buried 55-gal drum
88	No	No	One empty unlabeled 55-gal drum.
31	No	No	Several gas cylinders and one unlabeled 55-gal drum.

Building 88—One empty 55-gal drum was observed in the vicinity of the former location of Building 88 (Press Box). Visual evidence of spills or releases (e.g., stained soil, stressed vegetation) was not identified.

Building 31—Various chemical containers were observed in Building 31, including gas cylinders and an unlabeled 55-gal drum. According to Mr. Arnold, these containers store materials used for the general upkeep of NTC-B. Visual evidence of spills or releases from these containers (e.g., stained surfaces) was not observed.

Demolished Buildings—The locations of demolished buildings that were listed as hazardous/flammable storage buildings, laboratories, explosive/small arms magazines, auto vehicle maintenance shops, public works shops, and incinerators were inspected. Visual evidence of environmental concerns such as stained soil or stressed vegetation was not identified in these areas.

Hazardous Waste Disposal

A significant number of hazardous waste manifests were reviewed from a file maintained in Mr. Arnold's office at NTC-B. These manifests were reviewed jointly by EA and Mr. Arnold in order to establish where the materials that were disposed of as hazardous wastes had been originally stored. Mr. Arnold indicated that the majority of the materials were collected from the Job Corps buildings (Buildings 101, 103, and 105), the sewage treatment plant (Building 692), and the water treatment plant (Building 693), and that the pesticides that were removed from a barn (Building 53) located near the sewage treatment plant.

Coal Storage Area

EA conducted a site inspection of the coal storage area located in the northeastern portion of the base. The coal is stored along a bank and the volume of coal is estimated as approximately 100 ft long, 10 ft wide, and 1 ft deep. The coal is located in a lowland area and a stream is located approximately 100 ft north of the coal storage area. EA's inspection of the coal storage area and nearby stream did not reveal visual evidence of environmental concerns (e.g., stained soils, stressed vegetation, oily sheen, etc.).

Pesticide Shop

A former Pesticide Shop (Building 683) was located in the north central portion of NTC B. Concerns have been raised by EPA regarding potential pesticide contamination in this area. The site inspection revealed that the buildings in this area have been demolished and the ground surface is composed of a mixture of asphalt, gravel, and concrete foundations. A stormwater grate was observed in the vicinity of former Building 683, although no standing water was identified. Visual evidence of surface stains or stressed vegetation was not identified in the vicinity of former Building 683.

EA contacted Mr. Cliff Martin regarding operations at the Pesticide Shop when NTC-B was active. Mr. Martin served as a Sanitation Officer at NTC-B for approximately twenty years until the early 1970s, and his duties included management of the pesticide program at NTC-B. According to Mr. Martin, various compounds including pesticides, herbicides, and rodenticides were stored and mixed at the Pesticide Shop. Mr. Martin stated that the compounds were stored in their original containers which included 5 gal buckets, 55 gal drums, and 50 lb bags. Mr. Martin stated that the containers were stored in the Pesticide Shop and he did not know of any spills or accidental releases of the stored materials. Mr. Martin stated that a limited amount of pesticides were stored in a barn (Building 53) that was located in the Sewage Treatment Area. Mr. Martin stated that the pesticides stored at Building 53 were low-grade herbicides including granular herbicides that were used to control dandelions. Mr. Martin stated that he did not know of any spills or releases of the pesticides stored at Building 53.

Mr. Martin explained that a pesticide mixing room was located at the rear of the Pesticide Shop and was equipped with a concrete floor, a ventilation system, and spill control devices. Mr. Martin stated that the spill control devices included a steel table and collection trough over which the pesticide compounds were mixed. The steel collection trough surrounded the mixing area and was designed to collect any drips or spills that occurred during the mixing process. Mr. Martin stated that there were no floor drains in the Pesticide Shop, and he did not know of any spills that were not contained within the mixing room. In addition, Mr. Martin stated that the only storm drain in the vicinity of the Pesticide Shop was located in front (i.e., to the south) of the building, while the mixing shop was in the rear (i.e., northern portion) of the building, and there were no spills or releases of pesticides that migrated into the storm drain.

Mr. Martin stated that some granular herbicides were prepared in the field. The preparation of these compounds consisted of the placement of the herbicide into a spreader that was trailed behind a truck or tractor and applied to portions of the NTC-B property. In addition, some liquid herbicides were mixed in the field in a 300 gal pressurized sprayer that was used for fenceline weed control. Mr. Martin stated that he did not know of any spills or accidental releases of these herbicides.

Mr. Martin stated that a 20 percent DDT solution was formerly stored onsite that was aerially dispersed for mosquito control. According to Mr. Martin, when the use of DDT was banned by EPA, the DDT was disposed of in the Old Base Landfill. Mr. Martin stated that the method of disposal consisted of burying the DDT containers in an earthen trench. Mr. Martin stated that the containers were initially covered with a minimum of 4 ft of dirt, however, the DDT disposal pits have since been covered with 30-40 ft of additional wastes and dirt that have been placed in the Old Base Landfill. Mr. Martin stated that, besides the DDT, remaining pesticides stored at NTC-B were transported offsite for disposal.

2.5 BUILDING DEMOLITION/ASBESTOS ABATEMENT

A building demolition project was initiated in the Fall of 1990 under a contract between International Crane and the Navy. The Navy also contracted with Versar Corporation to supervise the building demolition/asbestos abatement work performed by International Crane. In addition, International Crane was contracted for the disposal of asbestos and demolition debris in the recently constructed and permitted onsite rubble landfill. EA has prepared a Quattro database file that summarizes dates of building demolition and indicates where asbestos abatement activities took place on a building-by-building basis. This database includes only information pertaining to the Navy's contracts with International Crane and Versar. Information pertaining to demolition or abatement that was done in the early 1980s under the direction of the Department of Labor (DOL) was not available at the time that this report was prepared (except for existing buildings, work by the DOL is represented by blank fields for "Date Abated" and "Date Demolished" on the database report). Based on interviews with Mr. Paul Arnold and Mr. Richard Mezzadonna, DOL administered the demolition of the majority of the 1st and 5th regiment buildings (100 and 500 series).

A portion of the NTC-B buildings collapsed prior to the initiation of the building demolition/asbestos abatement project. According to Mr. Frank Zepka, the presence of the collapsed building materials, including asbestos-containing materials (ACM), prompted the initiation of the formal asbestos abatement/building demolition project in order to prevent the uncontrolled release of asbestos into the environment.

The asbestos abatement project included the removal of friable ACM from buildings prior to their demolition, and the disposal of friable and non-friable asbestos in the recently constructed onsite rubble landfill. The severely deteriorated condition of some buildings prevented abatement prior to demolition even if the buildings were known to contain friable asbestos. Buildings such as theses were most often located in the hospital area.

A pilot study was recently conducted at NTC-B by the Navy, EPA Region III, MDE, and Versar Corporation to assess potential risks associated with asbestos concentrations in soil and the generation of airborne asbestos concentrations during future land use activities. Sampling activities included the collection and analysis of 33 surface (i.e., 0-3 in) soil samples, five 24-in depth soil samples, and 95 air samples. One soil sample was reported to contain a detectable asbestos concentration of $3.01E10^{10}$ structures per kilogram, however, this was a background sample. Therefore, the analytical results reported for the soil samples did not indicate elevated asbestos concentrations in the soil at Parcel 12. Air samples were collected during mock construction activities including excavation, soil loading and unloading, and site grading. Six air samples were reported as containing asbestos fiber concentrations at or slightly above the detection limit, with concentrations ranging from 0.002 to 0.003 fibers per cubic centimeter (f/cc). Based on the results of the pilot study, the soil and air analytical data indicate that target risks to nearby residents would not be exceeded during the development and subsequent use of NTC-B.

During the site inspection, a significant amount of suspected asbestos-containing material (SACM) was identified in and on the remaining improvements on NTC-B. Friable SACM identified included Thermal System Insulation (TSI), such as pipe and boiler insulation, as well as sprayed-on fireproofing (Building 102). Portions of these materials were damaged and appeared to present a potential fiber release concern. The visual identification of SACM is documented on the individual building checklists submitted as a separate deliverable to the Navy under Task 1.

2.6 POLYCHLORINATED BIPHENYLS

EA reviewed the 1982 PCB Survey conducted by Atlantic Division, Naval Facilities Engineering Command (LANTNAVFACENGCOM). The survey identified approximately 411 pieces of oil-filled electrical equipment located at NTC-B, and included the collection and analysis of oil samples for PCB concentrations. The survey identified six transformers that were assumed to contain PCB concentrations greater than 500 mg/L, based on manufacturer's information about the type of oil they contained (e.g., Pyranol, Saf-T-Kuhl). These transformers were removed from NTC-B in 1985 as documented on hazardous waste manifests. Thirteen capacitors were identified as PCB-containing and were also removed from NTC-B and disposed, although EA has not identified documentation for the removal of one of the capacitors (184A, serial number K15902). Based on the documentation reviewed, it appears that all oil-filled electrical equipment containing greater than 50 mg/L PCB has been removed from NTC-B. Remaining transformers and transformer canisters identified during EA's site inspection are discussed below.

According to Mr. Arnold, two active, pole-mounted transformers that belong to Delmarva Power Company are located along Bainbridge Road. These transformers were inspected and found to be in good condition, with no visual evidence of spills or releases observed. According to Mr. Arnold, there are no active Navy transformers at NTC-B.

Several transformer platforms, some of which still support transformer canisters, were identified on telephone poles in scattered locations across NTC-B. The transformer platforms are located approximately 15 ft above the ground, and in most cases, the platforms appeared to be damaged as a result of vandalism and/or the long-term effects of weathering. Therefore, visual inspections of the interior spaces of the transformer canisters were not conducted. However, according to Mr. Arnold, the transformer canisters that are present on the platforms may have been drained by vandals or other persons interested in collecting the salvageable equipment from inside the canisters. Mr. Arnold stated that the canisters originally mounted on these platforms were equipped with bottom plugs which, when removed, would drain the transformers. The site inspection identified approximately 60 transformer platforms on NTC-B. Visual surveys beneath the platforms did not reveal visual evidence of spills or releases of transformer oil (e.g., stained soil, stressed vegetation).

The site inspection identified four locations where empty transformer canisters were on the ground. The site inspection did not identify visual evidence of spills or releases of transformer

oil in these locations (e.g., stained soil, stressed vegetation). Based on the results of Task 1 of the EBS, there is no information to define whether these transformers were drained prior to falling to the ground.

Three transformer canisters were identified in an electric room in Building 693. The transformer lids had been removed and a visual survey of their interiors indicated that the canisters contained oil. The serial numbers of the transformers were recorded (286664, 286665, and 287821). Researching the analytical results of the 1982 PCB survey revealed that these transformers were sampled and no PCB were detected. Visual evidence of releases or spills was not identified in the electric room of Building 693.

Transformer Storage Area

An electric transformer storage and service area was formerly located in the vicinity of Buildings 713 and 714 (General Warehouses). Concerns have been raised by EPA regarding potential PCB contamination in the vicinity of these buildings. The site inspection revealed the presence of concrete foundations and a gravel/soil mixture in the former locations of Buildings 713 and 714. Visual evidence of transformer oil releases or spills (e.g., soil staining, stressed vegetation) was not identified. It is noted that the area approximately 10 ft north of Buildings 713 and 714 has been used as a borrow pit for the landfill construction activities occurring onsite, and soil has been excavated to an approximate depth of 10 ft.

EA contacted Mr. Bill Yale regarding the storage of electric transformers in the vicinity of Buildings 713 and 714. Mr. Yale served as a line foreman and was familiar with operations associated with transformers at NTC-B. According to Mr. Yale, between 15-20 transformers were typically stored on pallets in the vicinity of Building 713 and 714. Mr. Yale stated that transformers were stored in this area from the time the base opened until approximately 1974. Mr. Yale stated that he did not know of any spills or leaks associated with the transformer storage area. Mr. Yale stated that transformers that were to be disposed were delivered to the salvage yard in the northern portion of NTC-B. Mr. Yale stated that oil transfers were not conducted in the transformer storage area.

2.7 IR PROGRAM SITES

EA has reviewed several reports regarding the investigations of the Old Base Landfill (Site 1) and the Fire Training Area (Site 2), being conducted under the Navy Installation Restoration (IR) Program. Site 1 was operated as a sanitary landfill from the early 1940s until 1976. The landfill received general municipal wastes and debris from building demolitions. In addition, according to Mr. Cliff Martin, DDT was disposed of in the Old Base Landfill. Site 2 was operated as a Fire Training Area and included a concrete platform, an unlined drainage ditch, and an earthen oil/water separator pit. During fire training sessions, oil-soaked structures atop the concrete platform were set ablaze and extinguished. The water and oil run-off flowed into the drainage ditch and the separator pit, prior to being discharged to Happy Valley Branch.

Significant sampling efforts and interim cleanup actions have been conducted in both of these areas. The interim cleanup actions included the removal of contaminated soils/sediment from Sites 1 and 2 and the placement of a cap over Site 1. Following the soil/sediment removal, wetland mitigation projects were conducted at Site 1 (on the western side of the landfill), Site 2 (in the former oil separator pit), and additional replacement wetlands were constructed at the former water supply reservoir. Based on the results of a risk assessment currently being conducted by Ecology and Environment, additional remedial operations may be conducted.

The stream adjacent to the western side of Site 1 was surveyed by EA for the presence of transite. During the Site 1 removal action, a stabilizing fabric and overlying rip-rap were installed in the upper portions of the stream in order to prevent additional sediment erosion which results in the exposure of buried transite. The site inspection confirmed the presence of rip-rap in the upper portions of the stream, and transite was not observed in the portion of the stream located on NTC-B. Site 2 was inspected and was found to consist of a wetlands area. This wetlands area was constructed as part of the removal action completed at Site 2.

2.8 ARCHAEOLOGIC AND HISTORIC SITES

Two sites on NTC-B have been identified and listed on the National Register of Historic Places: the Tome School District and the Snow Hill Archeological Site. The Tome School District includes 13 buildings located in the southwestern corner of NTC-B. An agreement has been reached between the Advisory Council on Historic Preservation (ACHP), the Maryland Historical Trust (MHT), and the Navy which establishes procedures for stabilization and maintenance of these structures. The site inspection revealed that the majority of the Tome School buildings are significantly damaged.

The Snow Hill Archaeological Site is located in the southwestern corner of NTC-B, along the fence that parallels U.S. Route 222. The property was part of a black community that existed within Port Deposit before and after the Civil War and has the potential to contain information important to the historic archaeology and the nineteenth-century African-American experience in Maryland. The site inspection did not identify visual evidence of the Snow Hill Archaeological Site.

2.9 HISTORICAL INFORMATION

Aerial photographs of NTC-B from 1938 through 1988 were provided by Mr. Steve Hiortdahl of the USGS. The aerial photos were reviewed in order to assess historical uses of NTC-B. Aerial photographs from 1938, 1947, 1951, 1952, 1970, 1976, 1981, 1987, and 1988 were reviewed. The 1938 photograph indicated the presence of large agricultural fields and related residential structures prior to the Navy's acquisition of the site. Visual evidence of industrial operations was not observed in the 1938 aerial photograph. The photographs from 1947 through 1988 depicted various stages of Naval operations onsite, including the presence of barracks, training areas, instruction buildings, the Fire Training Area, the Old Base Landfill,

and the sewage treatment plant. In summation, the review of the aerial photographs did not reveal visual evidence of environmental concerns that have not already been identified.

The chain-of-ownership information for NTC-B consists of deeds documenting the acquisition of NTC-B property by various mechanisms, including condemnation or taking, and purchase. A review of the previous owners of NTC-B indicates private ownership by a large number of individuals. The Whitaker Iron Company is listed as a previous owner of a portion of NTC-B. EA contacted Mr. Paul Arnold regarding the location of the Whitaker Iron Company. Mr. Arnold stated that, in discussion with retired Judge Walter Buck of Port Deposit, Maryland, he was informed that the Whitaker Iron Company foundry was located in Principio, Maryland, approximately 7 miles north of Perryville on Route 1. Mr. Arnold stated that some of the Whitaker family members formerly lived on NTC-B, but no industrial operations associated with the Whitaker Iron Company were conducted on NTC-B.

2.10 ENVIRONMENTAL DATABASE SEARCH

An environmental database report produced by Environmental Risk Information and Imaging Services (ERIIS) was reviewed by EA. This report is a listing of sites that have been included in various federal and state environmental databases. The report searches federal and state databases in order to identify regulated sites that are located within specific distances established by ASTM (ASTM Standard No. 1527-94). These search distances were established by ASTM in order to define good commercial and customary practice for conducting an environmental site assessment of commercial property. These distances are indicated for the various databases below.

- National Priority List (NPL)—1-mi radius
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) 0.5-mi radius
- Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal (TSD) Facilities—1-mi radius
- *RCRA Generators—0.25-mi radius*
- Emergency Response Notification System (ERNS)—Subject property only
- Maryland Potential Hazardous Waste Sites (PHWS)—1-mi radius
- Maryland Registered Underground Storage Tanks (RUST)—0.25-mi radius
- Maryland Leaking Underground Storage Tanks (LUST)—0.5 mi radius

It is noted that, due to the irregular shape of the NTC-B boundaries, a corridor was searched around NTC-B to ensure that the minimum search distances specified by ASTM were covered in the report. Therefore, sites may be listed in the ERIIS Report that are not located within the ASTM-specified distances of NTC-B.

Federal Databases

One NPL site was identified in the ERIIS Report. NPL sites are the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. The site is the Woodlawn County Landfill and is listed as being located at Fire Tower and Waibel Roads, at an approximate distance of 1.25 mi north of NTC-B. The Woodlawn County Landfill is listed as being discovered (i.e., listed in the Federal CERCLA docket) on 1 April 1979. A Preliminary Assessment was completed on 20 October 1987 and the site was listed on the NPL on 22 January 1987. Based on a review of surface topography via USGS Topographic Quadrangles (Rising Sun and Havre de Grace), the Woodlawn County Landfill appears to be located cross-gradient from NTC-B. Based on the proximity of the Susquehanna River, ground-water flow in this area is likely towards the west. In addition, an unnamed tributary to Basin Run separates the landfill from NTC-B. The distance and presence of a stream between the Woodlawn County Landfill and NTC-B, as well as the likely direction of ground-water flow towards the Susquehanna River indicate a low potential for constituents of concern from the landfill to migrate onto NTC-B.

No other federal database searches in the ERIIS Report revealed listed sites as being located within ASTM-specified distances of the subject property.

Maryland Databases

One Maryland PHWS was identified within a 1-mi radius of the subject site in the ERIIS Report. PHWS sites are sites which are considered to be a threat to the public health and welfare by MDE. The site is listed as Principio Road with a street address of 551 Principio Road, at a distance of approximately 0.8 mi east of NTC-B. Information regarding the nature of the environmental concerns at the Principio Road site is not included in the ERIIS Report. Based on a review of surface topography via a USGS Topographic Quadrangle (Havre de Grace), the Principio Road site appears to be located upgradient of NTC-B. Ground-water flow in this area is likely westward towards the Susquehanna River, indicating that constituents of concern may migrate from the Principio Road site onto NTC-B.

Four Maryland Solid Waste Facilities (SWF) were identified as being located in the vicinity of the subject property. Street addresses were not provided in the ERIIS Report and the SWF list was reviewed by Mr. Paul Arnold in order to assess the distance and direction between the SWF facilities and NTC-B. The SWF list included the Bainbridge Rubble Landfill, the Central Municipal Sanitary Landfill, and two transfer stations (e.g., Stemmers Run and Woodlawn). The Bainbridge Rubble Landfill is located in the western portion of NTC-B and has previously been discussed. The Central Municipal Sanitary Landfill is located on Old

Philadelphia Road in Elkton, Maryland; at a distance of over 10 miles east of NTC-B, indicating that it does not present an environmental concern to NTC-B. The Woodlawn Transfer Station is located at Waibel and Fire Tower Roads, at a distance of approximately 1.25 mi north of NTC-B. Based on surface topography and the presence of a small stream between the Woodlawn Transfer Station and NTC-B, it does not appear that the Woodlawn Transfer Station presents a significant environmental concern to NTC-B. The location of the Stemmers Run Transfer Station has not been confirmed, however, it is noted that transfer stations typically consist of warehouse type buildings that are used as temporary storage areas for municipal wastes. The absence of subsurface waste activities (e.g., landfilling) at transfer stations indicates that the Stemmers Run Transfer Station does not appear to present a significant environmental concern to NTC-B.

Six Registered Underground Storage Tank (RUST) sites were identified within a 0.25-mi radius of the subject site within the ERIIS report. These sites refer to all RUSTs located within the State of Maryland. The RUST sites included the following:

- Logan's Wharf
  160 S. Main Street
  One 550-gal gasoline UST (removed)
  Approximately 0.10 mi west of NTC-B

- Water Witch Fire Co.
  15 N. Main Street
  One 550-gal gasoline UST (permanently out of use)
  One 1,000-gal diesel UST (permanently out of use)
  Approximately 0.10 mi west of NTC-B

- Bainbridge Elementary
  41 Preston Drive
  One 6,000-gal heating oil UST (removed)
  One 10,000-gal heating oil UST (currently active)
  Approximately 0.10 mi east of NTC-B

- Pleasant View Baptist Church
  7 Pleasant View Church Road
  One 2,000-gal heating oil UST (currently active)
  One unreported UST (permanently out of use)
  Approximately 0.10 mi east of NTC-B

- Battle Swamp Market
  560 Craigtown Road
  Four gasoline USTs (removed)
  Approximately 0.10 mi east of NTC-B

- Craigtown Market
  712 Craigtown Road
  Three 6,000-gal gasoline USTs (currently active)
  One 1,000-gal kerosene UST (currently active)
  Approximately 0.10 mi east of NTC-B

The Logan's Wharf and Water Witch Fire Company facilities are located west of NTC-B on Main Street in Port Deposit. Based on surface topography, these facilities are located down gradient from NTC-B, and ground-water flow in the vicinity of these RUST facilities would appear to be directed westward towards the Susquehanna River. In addition, the USTs registered to these facilities are listed as having been removed or permanently out of use. EA contacted the Oil Control Program of MDE regarding the permanently out of use status of the USTs registered to the Water Witch Fire Company. EA was informed that this status indicates that the UST may have been abandoned in place, removed, or may have been improperly abandoned; indicating that the UST is no longer used to actively store fuel. Therefore, the Logan's Wharf and Water Witch Fire Company facilities do not appear to present an environmental concern to NTC-B based on their locations and UST status.

The Bainbridge Elementary School is located on Preston Drive, and is nearly adjacent to the eastern boundary of NTC-B. The Bainbridge Elementary School is listed as having one registered 10,000 gal heating oil UST that is currently active and one 6,000 gal heating oil UST that has been removed. Based on a review of surface topography, the Bainbridge Elementary School appears to be located upgradient of NTC-B. However, it appears that a topographic ridge is located between the Bainbridge Elementary School and the western portion of NTC-B, indicating that the Bainbridge Elementary School may be located cross-gradient from NTC-B. It is noted that the Bainbridge Elementary School is not listed in the Maryland Leaking Underground Storage Tank (LUST) list, indicating that recovery operations associated with a leak or spill from an UST are not occurring at the Bainbridge Elementary School. Based on its apparent cross-gradient location form NTC-B, and its absence from the Maryland LUST database, the Bainbridge Elementary School does not appear to present an environmental concern to NTC-B at this time.

The Pleasant View Baptist Church is listed as having one 2,000 gal heating oil UST that is currently active and one unreported UST that is permanently out of use. EA contacted the MDE OCP regarding the unreported UST registered to the Pleasant View Baptist Church. EA was informed that the registration for that UST did not contain a complete description of the tank regarding its age, size, or contents. However, the UST is listed as having been out of service since 1980. As previously stated, the permanently out of use status indicates that the UST may have been removed, abandoned in place, or improperly abandoned; indicating that the UST is not used to store fuel. The Pleasant View Baptist Church is located east of NTC-B at a distance of approximately 0.10 mi from the eastern boundary of NTC-B. Based on surface topography, the Pleasant View Baptist Church appears to be located upgradient of NTC-B. However, the Pleasant View Baptist Church appears to be located on the eastern side of a ridge that separates it from NTC-B, indicating that although it appears to be upgradient of

NTC-B, ground water from beneath the Pleasant View Baptist Church may not migrate onto NTC-B. The Pleasant View Baptist Church is not listed in the Maryland LUST database, indicating that leaks or spills associated with the USTs registered to the Pleasant View Baptist Church that required recovery/remedial operations have not been detected. Therefore, based on the information reviewed, the Pleasant View Baptist Church does not appear to present an environmental concern to NTC-B at this time.

The Battle Swamp Market is registered as having four gasoline USTs that have been removed. The Battle Swamp Market is not included in the Maryland LUST database, indicating that leaks or spills associated with these USTs that required recovery/remedial operations have not been detected. Based on this information, the USTs registered to the Battle Swamp Market do not appear to present an environmental concern to NTC-B at this time.

The Craigtown Market is listed as being located on Craigtown Road, at an approximate distance of 0.10 mi east of NTC-B. Based on surface topography, the Craigtown Market is located upgradient of NTC-B. However, Mill Creek is located between the Craigtown Market and NTC-B, which may serve as a hydrogeologic barrier and prevent the migration of ground water from beneath the Craigtown Market onto NTC-B. Three gasoline USTs and one kerosene UST are registered to the Craigtown Market. However, the Craigtown Market is not listed in the Maryland LUST database, indicating that spills or leaks associated with the Craigtown Market USTs that required remedial/recovery operations have not been detected. Therefore, the USTs registered to the Craigtown Market do not appear to present an environmental concern to NTC-B at this time.

No other Maryland environmental database sites were identified in the ERIIS Report as being located within ASTM-specified distances of NTC-B.

2.11 MISCELLANEOUS

A circular concrete structure was identified approximately 25 ft southwest of Building 205. A steel lid covering the top of the structure was partially removed and the structure was identified as a storm sewer manhole.

According to Mr. Paul Arnold, an acid sewage line formerly was located in the vicinity of the coal storage pile in the northern portion of NTC-B. Mr. Arnold stated that the line was used to collect runoff from the coal storage pile and direct it to the sewage treatment plant. Mr. Arnold stated that a stream is located in the vicinity of the coal storage pile and the stream was formerly used as a source of drinking water for residents of Perryville. Thus, the acid sewage line was installed in order to protect the former drinking water supply for residents of Perryville. Mr. Arnold stated that the acid sewage line has since been demolished as the residents of Perryville no longer rely on the stream as a source of drinking water.

3. RECOMMENDATIONS

This section of the report presents EA's recommendations for follow-up investigations to be conducted at NTC-B. A summary of the concerns and recommended actions is presented in Table 3-1.

3.1 TASK 2 SCOPE OF WORK

Based on the results of Task 1 of the EBS completed at NTC-B and review of EPA correspondence regarding NTC-B, additional work is being recommended to address potential environmental concerns raised during the site inspection, record reviews, and interviews. These recommendations are presented below.

EPA Correspondence

Correspondence received by the Navy from EPA/MDE regarding the EBS at NTC-B recommended the following modifications to the Task 2 sampling and analysis scope of work:

- Collection of 10 soil samples in the Officer Housing Area, 10 soil samples at former Building 720 (Administrative Office), and 5 soil samples at each of the two former water tower locations for analysis of total lead concentrations.
- Collection of one seep sample, one surface water sample, and three ground-water samples at EPA-specified locations in the vicinity of the Old Base Landfill for asbestos analysis.
- Collection of five soil samples in the vicinity of former Buildings 713 and 714 for analysis of PCB concentrations.
- Collection of five soil samples at former Building 683 (Pesticide Shop) for analysis of EPA Target Compound List (TCL) Pesticides.
- Collection of two soil samples of coal ash/cinders at the Open Storage/Salvage Yard and two soil samples at the former Coal Storage Pile for analysis of Target Analyte List (TAL) Metals and Polycyclic Aromatic Hydrocarbons (PAH).
- Elimination of sample collection at former Building 627 (Brig Area).
- Elimination of sample collection from the 55-gal drum located at Building 692 (Sewage Treatment Plant).

It is noted that these sampling recommendations and any additional sampling at NTC-B will be discussed between EPA, MDE, the Navy, and EA prior to the initiation of the sampling effort to be conducted under Task 2. The results of the discussions regarding additional sampling

TABLE 3-1 AREAS OF CONCERN AND RECOMMENDATIONS

SITE	CONCERN	RECOMMENDATION
EPA Correspondence		
Lead Paint	Potentially elevated lead concentration in soils.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Asbestos	Potentially elevated asbestos concentrations migrating from Old Base Landfill.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
PCB	Potentially elevated PCB concentrations in vicinity of Buildings 713 and 714.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Coal/Ash/Cinders	Potentially elevated metal and PAH concentrations at Open Storage/Salvage Yard and Coal Storage Pile.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Coal Storage Pile	Historical coal storage.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Pesticide Shop	Historical storage/mixing of pesticides.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Transformer Storage Area	Historical storage/repair of transformers.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Site 1 (Old Base Landfill)	Historical sanitary landfill containing municipal wastes, pesticides, building demolition debris.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Site 2 (Fire Training Area)	Historical releases of petroleum, solvents, etc.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
UST Sites		
Bldg 718	UST case may be reopened by CERCLA Division of MDE in order to address more stringent detection limits for chlorinated solvents.	Await notification from MDE.
Bldg 756	Open UST case with MDE, pending analytical data, likely to be closed.	Conduct required sampling, await notification from MDE.
Suspected USTs		
Bldg M	Potential UST location.	Conduct additional inspection with Paul Arnold, based on results of inspection, may excavate suspect area in Task 2.
Bldg N	Potential UST location.	Conduct additional inspection with Paul Arnold, based on results of inspection, may excavate suspect area in Task 2.
Bldg 760	Potential UST location.	Conduct additional inspection with Paul Arnold, based on results of inspection, may excavate suspect area in Task 2.

TABLE 3-1 (continued)

SITE	CONCERN	RECOMMENDATION
AST Sites		
Bldg J-J	AST in basement.	Navy to remove.
Bldg 526	Abandoned AST in woods behind building.	Navy to remove.
POL Sites		
Bldg 529	Former heating oil storage facility.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Bldg 760	Waste oil containers, stained floors.	Navy to remove containers and clean floors.
Hazardous Materials		
Bldg 404B	Ten empty 55-gal drums, ten empty 5-gal buckets.	Navy to remove containers.
Bldg 502B	One 5-gal bucket, four 1-gal containers.	Navy to remove containers.
Bldg 505A	Empty 1-gal container labeled sodium hypochlorite, stained soil behind western side of building.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Bldg 506A	Several 5-gal and 1-gal containers, stained and cracked concrete floor.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Bldg 631	Several 5-gal and 1-gal containers, stained floor, hole in wall at floor level.	Additional activities including the collection and analysis of environmental samples to be negotiated and conducted under Task 2.
Miscellaneous Containers		
Bldg 529	Two oxygen gas cylinders, one empty 5-gal bucket.	Navy to remove containers.
Bldg 35	One (1) partially filled 5-gal drum.	Navy to remove containers.
Bldg 103B	Empty container of paint stripper, stained floors.	Navy to remove containers.
Bldg 103	Several empty 5-gal containers, one (1) acetylene gas cylinder.	Navy to remove containers.
Bldg 102	One (1) automotive battery, one (1) 5-gal bucket floor sealer, one (1) 35-gal drum with unknown solid contents.	Navy to remove containers.
Bldg 693	One (1) full gas can, one (1) automotive battery, one (1) R-22 canister, six acetylene cylinders, four fire extinguishers, floor stains in machinery room, waste dumpster full of chemical containers.	Navy to remove containers.
Bldg 692E	One (1) empty 5-gal bucket, several empty 1-gal containers, one (1) partially filled gas can, one partially filled 55-gal drum with solid contents.	Navy to remove containers.
Bldg 760	One (1) empty 55-gal drum.	Navy to remove container.

TABLE 3-1 (continued)

SITE	CONCERN	RECOMMENDATION
Bldg 713/714	One (1) full 55-gal drum.	Navy to remove container.
Bldg 659A	Two partially filled 55-gal drums, one (1) buried 55-gal drum.	Navy to remove containers.
Bldg 88	One (1) empty 55-gal drum.	Navy to remove container.
Bldg 31	Gas cylinders, one (1) unlabeled, full 55-gal drum.	Navy to remove container.
Miscellaneous		
International Crane	ASTs, abandoned vehicles, abandoned trailers, 55-gal drums on Drill Field, stained surfaces.	Navy to facilitate contractor removal/remediation.
Cecil Comm. Coll.	Chemical containers, stained surfaces.	Navy to facilitate contractor removal/remediation.

will be documented in the Sampling Plan to be prepared by EA and submitted to the Navy under Task 2.

Hazardous/Flammable Storage Buildings

Based on the results of Task 1, EA is recommending modifications to the Task 2 scope of work to include the collection of samples from areas identified as suspect. These areas include Hazardous/Flammable Storage Building Nos. 505A, 506A, and 631. Areas of floor staining were identified in each of these buildings. In addition, an area of stained soil was identified adjacent to Building 505A, a crack was identified in the concrete floor at Building 506A, and a hole was identified in the wall of Building 631 at floor level. These findings indicate a potential for materials stored in these buildings (e.g., paint, paint thinners, etc.) to have migrated into the environment. In order to assess the potential for spilled materials to have migrated into the environment, EA recommends the collection and analysis of soil samples from the suspect areas identified at the above-listed buildings.

Underground Storage Tanks

Two oil drain pans connected to underground pipes were observed at Building 760 (Automotive Shop), indicating that a waste oil UST may have served this building. The review of MDE OCP and Versar records revealed documentation of the removal of a heating oil UST, but no documentation of a waste oil UST was identified. EA recommends that a survey be conducted in the vicinity of Building 760 to assess for the potential presence of a waste oil UST. Based on discussions with Mr. Paul Arnold and Mr. Frank Zepka, it does not appear that blueprints or construction diagrams documenting the location of an oil/water separator system at Building 760 are available. Therefore, it is recommended that a subsurface investigation be conducted in the vicinity of Building 760. The most definitive method of investigating the subsurface is excavation of the underground waste oil pipes. However, this method would include, at a minimum, damage to the service pits and surrounding concrete deck. Ground Penetrating Radar (GPR) could be used to assess subsurface conditions; however, the presence of any metallic objects in the ground can lead to false positives. Therefore, excavation of the underground pipes is recommended.

A UST vent pipe was identified adjacent to Building N (Married Officers Housing), suggesting the presence of a heating oil UST. Mr. Paul Arnold stated that the heating oil UST at Building N had been removed; however, review of MDE OCP and Versar records did not reveal documentation of an UST removal. In addition, it is noted that MDE OCP and Versar records did not contain documentation of UST removal at Building M (Married Officers Housing, adjacent to Building N), and based on its similarity to Building N, there may be a heating oil UST in the vicinity of Building M as well. Therefore, it is recommended that a subsurface investigation be conducted to assess for the potential presence of USTs in the vicinity of Buildings M and N. EA recommends the excavation of suspect UST locations at these buildings.

Petroleum/Oil/Lubricants at Building 529

The site inspection revealed the presence of Building 529 (Fuel Oil Pump House) to the west of Building 502 (Enlisted Dining Facility). Building 529 previously stored large quantities of fuel oil in an AST, which was surrounded by a concrete dike. The dike was filled with water at the time of the inspection, and visual evidence of petroleum releases was not identified in this area. However, given the dates of operation at NTC-B, the storage of a significant amount of heating oil for a period of approximately 30 years (1940s to 1970s) presents a potential environmental concern and warrants additional investigation. In the event that the building and dike are to be demolished, a visual assessment of the subsurface soil and ground water (if present) could be conducted in order to assess for signs of environmental concerns (e.g., staining, sheens, odors, etc.). In addition, soil could be screened using a photoionization detector (PID) or a flame ionization detector (FID) to assess for volatile hydrocarbons. In the absence of demolition activities, a sampling operation targeting the soil surrounding and beneath the diked area could be conducted to assess the potential presence of petroleum constituents.

Surrounding Properties

The review of federal and Maryland environmental databases revealed the presence of a Maryland PHWS approximately 0.8 mi east of NTC-B. Based on a review of surface topography and the proximity of the Susquehanna River to the west of NTC-B, the Principio Road PHWS facility appears to be located upgradient of NTC-B. In order to assess the degree of environmental concern posed to NTC-B by the Principio Road site, EA recommends that a Freedom of Information Act (FOIA) request be submitted to MDE in order to review available files. Based on the review of MDE files, additional work may be recommended as warranted.

3.2 ONGOING NAVAL OPERATIONS

The results of Task 1 of the EBS at NTC-B revealed concerns outside the scope of the EBS that should be addressed by the Navy. These concerns and recommendations are presented below.

Chemical Containers

A variety of chemical and petroleum product containers (some empty, some partially full) were identified during the site inspection. These containers include gas cylinders, 55-gal drums, 35-gal drums, 5-gal buckets, and 1-gal containers. In addition, an apparent heating oil AST was identified in the basement of Building J-J (Married Officers Housing), and a dumpster full of chemical containers was identified adjacent to Building 693 (Water Treatment Plant). Based on the inactive status of these containers, EA recommends that the containers be screened to determine if they are empty or to determine the nature of their contents, removed, and disposed of by a licensed hazardous waste contractor or solid waste contractor, as appropriate. In addition, EA is available to provide oversight of the removal process in order

to assess for evidence of spills, releases, or other conditions that would warrant the collection of confirmatory samples.

Contractor Wastes

Four abandoned tractor trailers were identified on the 2nd Regiment Drill Field. According to Mr. Paul Arnold, these trailers are the property of International Crane. It is recommended that International Crane remove these trailers from NTC-B. In addition, it is recommended that International Crane remove the 55-gal drums located on the 1st Regiment Drill Field, the ASTs located at their office trailer on Bainbridge Road, petroleum stains attributable to their activities, and their abandoned vehicles identified at Building 103.

Various chemical containers, including one 55-gal drum, and a limited area of surface staining were observed at the Cecil County Community College Truck Driver Training School Office in the northwestern portion of NTC-B. It is recommended that the College be responsible for the proper removal and disposal of these materials. In addition, it would be prudent for the Navy to conduct an exit inspection to ensure that additional contractor wastes are not left onsite.

Asbestos

A significant amount of SACM is currently located in the remaining improvements on NTC-B. Non-friable materials include transite siding and floor tile. Friable materials include TSI and the sprayed-on fireproofing in Building 102. The asbestos content of suspect materials should be determined, either through a review of the asbestos sampling report prepared for the Navy by Versar Corporation on 1 December 1988, or via the collection and analysis of bulk samples. According to Mr. Frank Zepka, the Navy intends to leave asbestos-containing materials that are in good condition in place, and will notify future owners/occupants of NTC-B of its whereabouts. Asbestos containing materials that are in poor condition should be properly removed/abated prior to the transfer of NTC-B.

Electric Transformers

Three transformer canisters were identified in Building 693 that contained oil. A review of the 1982 PCB survey indicated that the oil in the transformers was sampled and no PCB were detected. However, the oil presents a concern with regard to the potential release of petroleum products. Therefore, it is recommended that the Navy remove and properly dispose/recycle the oil contained in the transformer canisters at Building 693.

Temporary Backfill Monitoring Wells

Temporary backfill monitoring wells were identified at scattered locations across NTC-B. Given the fact that these wells have not been sampled and are not scheduled to be sampled in the future, it is recommended that all of the temporary backfill monitoring wells be properly abandoned prior to the transfer of NTC-B.